



EP 1 494 894 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
09.05.2007 Bulletin 2007/19

(51) Int Cl.:
B60R 9/058 (2006.01)

(21) Application number: **03713149.7**

(86) International application number:
PCT/SE2003/000465

(22) Date of filing: **20.03.2003**

(87) International publication number:
WO 2003/084782 (16.10.2003 Gazette 2003/42)

(54) **LOAD CARRIER FOOT**

LASTTRÄGERFUSS

PATTE DE PORTE-BAGAGES

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR**

(73) Proprietor: **Thule Sweden AB
330 33 Hillerstorp (SE)**

(30) Priority: **04.04.2002 SE 0201015**

(72) Inventor: **LINDEN, Claes-Göran
S-335 31 Gnosjö (SE)**

(43) Date of publication of application:
12.01.2005 Bulletin 2005/02

(56) References cited:
**WO-A1-00/15465 DE-A1- 3 405 357
SE-B- 461 837**

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

DescriptionTechnical field

[0001] The present invention relates to a load carrier foot for attaching a load carrier bar to a vehicle roof. The load carrier foot comprises a foot part which is attached at the upper end to the load carrier bar and which, at its lower end, is mounted on a roof edge area of the vehicle. The foot part is attached to the roof by means of a clamping plate which, by means of an integral gripping means, grips a body fold located under the roof edge area and the clamping plate is in pivotable engagement with the foot part by means of a pivot pin and in tightenable engagement with the foot part by means of a tightening arrangement. The foot part and clamping plate are each provided with contact faces located under the pivot pin when the load carrier foot is mounted on the vehicle roof, which faces interact to prevent the clamping plate from turning about the pivot pin and causing the gripping means to be lose its grip with the body fold when the clamping plate is tightened by the tightening arrangement against the foot part.

State of the art

[0002] A load carrier foot of the generic type described above is already known from German patent DE 3405357. However, the disadvantage of this earlier type of foot is that the contact faces incorporated in the design do not always ensure that the gripping means maintains its grip when the clamping plate is tightened against the load carrier foot. As a result, the user may, on observing this situation, attempt to tighten the clamping plate further, possibly causing the foot to damage the vehicle roof or, if the situation is not observed, causing the load carrier foot to lose grip its completely, with the possibility of catastrophic consequences since the load carrier may then be thrown from the vehicle roof.

Brief description of invention

[0003] The present invention overcomes the aforementioned disadvantages by means of a load carrier foot of the type described in the introduction, which is characterised in that the pivot pin is pivotable connected to the foot part and that the clamping plate and the load carrier foot are each provided with contact faces, which are located above the pivot pin and which interact in a locking manner and which, further prevent the clamping plate gripping means from being twisted out of engagement when the clamping plate is tightened.

Brief description of figures

[0004] A preferred embodiment of a load carrier foot in accordance with the present invention will hereinafter be described with reference to the appended figures, of

which:

Fig. 1 is a schematic view of a vehicle with a roof-mounted load carrier;
 Fig. 2 is a view showing a roof edge area with a load carrier foot in accordance with the present invention mounted on it;
 Fig. 3 is a view corresponding to Fig. 2 seen from the side, with the interior of the foot exposed;
 Fig. 4 is a view in which the inside of the load carrier foot is made visible and in which part of the clamping plate is omitted to show the invention more clearly;
 Fig. 5 is a detail view from which the interaction between the clamping plate and the foot part is clearly seen and
 Fig. 6 is a view corresponding to Fig. 5 showing the load carrier foot in a non tightened position.

Preferred embodiment

[0005] Fig. 1 shows a vehicle 1 with a load carrier bar 3 mounted on the roof 2 by means of load carrier feet 4 to the roof edge areas 5. Fig. 2 shows a roof edge area 5 with a load carrier foot 4 provided with a foot part 6, to the upper end 7 of which is connected a load carrier bar 3. The lower end 8 of the foot part rests against a roof edge area 5 and a clamping plate 9 attached to the foot part grips a body fold 11 located under the roof edge area 5 by means of a gripping means 10. The body fold 11 may be a door or window opening. The figure furthermore shows a cover 12, whose sole function is to cover the mechanism which is housed in the foot part and will be described below, and also provides the load carrier foot with an attractive appearance.

[0006] Figs. 3 and 4 are detail views of the load carrier foot with the cover 12 omitted. The figures show that the foot part 6 comprises a base part 13, which rests on the roof edge area 5. The base part may preferably be made of a plastic material to prevent it from damaging the vehicle paintwork. A housing part 14 is permanently attached to the base part 13 with fastening devices 15 and 16 respectively. The housing part supports a load carrier bar 3, which is permanently attached to the housing part by means of screws 17. The housing part 6 incorporates walls 18 and 19, in which channels 20 and 21 respectively are provided. A pivot pin 22 is seated in the channels 20 and 21 by means of journals 23 and 24, which extend into the respective channels and are free to turn. The clamping plate 9 is attached to the pivot pin 22 by means of open slots 25 in the clamping plate, only one of which is visible in Fig. 4, enclosing the pivot pin journals 23 and 24 respectively. This arrangement permits the clamping plate to be moved upward and downward in the direction indicated by the double arrow P in Fig. 4. A tightening arrangement 26, consisting of a screw 27 threaded into a tapped hole 28 in the pivot pin 22, and with a head bearing on the clamping plate 9, enables the clamping

plate and gripping means to be moved, in a manner familiar to one skilled in the art, upward towards the foot part 6, whereby the gripping means grips the body fold 11 and tightens the load carrier foot 3 against the roof edge area 5. The clamping plate is provided with lower contact faces 30 located under the pivot pin 22 and upper contact faces 31 located above the pivot pin 22. Although only one of these is visible in Fig. 4, it will easily be understood that the clamping plate is provided with a corresponding face in the area hidden by the wall 19. The walls 18 and 19 are provided respectively with lower contact faces 32, only one of which is visible in the figure, which interact with the lower contact faces 30 and upper contact faces 33, which faces, in turn, interact with the contact faces 31.

Fig. 5 shows the interaction of the contact faces. The figure shows the foot part mounted on a roof edge area 5. The clamping plate 9 grips a body fold 11 with its gripping means 10 and the clamping plate 9 is tightened in an upward direction in the direction indicated by the double arrow P. The interaction which occurs between the lower contact faces 30 and 32 and the upper contact faces 31 and 33 respectively prevents the clamping plate from turning about the pivot pin 22 in the clockwise direction, which direction is indicated by the arrow U, ensuring that the gripping means 10 does not lose its grip on the body fold 11.

[0007] In Fig. 6, the clamping plate has been move downward in the direction indicated by the double arrow P, in which position the contact faces have been separated and the clamping plate is free to turn in the clockwise direction, facilitating both simple mounting and removal of the load carrier foot.

Claims

1. A load carrier foot (4) for mounting a load carrier bar (3) on the roof (2) of a vehicle (1), said load carrier foot comprising:

a foot part (6) having a base part (13) and a housing part (14), the foot part having an upper end (7) for attachment to the load carrier bar (3), and the foot part having a lower end (8) for mounting on a roof edge area (5) on the vehicle, the foot part having a clamping plate (9) for securing the foot part to the roof of the vehicle, the clamping plate having integral gripping means (10) for gripping a body fold (11) located under the roof edge area of the vehicle, the clamping plate being in pivotable engagement with the foot part by means of a pivot pin (22), which is pivotably connected to the foot part, and the clamping plate being in tightenable engagement with the foot part by means of a tightening arrangement (26), the foot part and the clamping plate each having lower contact faces (30, 32)

5

10

15

20

25

35

40

45

50

55

which are located under the pivot pin when the load carrier foot is secured to the vehicle roof, which lower contact faces (30, 32) interact in a locking manner when the load carrier foot is secured to the vehicle roof in order to prevent the clamping plate from turning about the pivot pin thereby preventing the gripping means from losing its grip on the body fold when the clamping plate is tightened against the foot part, and the clamping plate and the foot part each have upper contact faces (31, 33) which interact in a locking manner when the load carrier foot is secured to the vehicle roof, and which further prevent the gripping means from losing its grip on the body fold when the clamping plate is tightened by the tightening arrangement,

characterized in that

the second contact faces (31, 33) are located above the pivot pin when the load carrier foot is secured to the vehicle roof.

2. Load carrier foot (4) in accordance with claim 1, **CHARACTERISED IN THAT** the pivot pin (22) is connected to walls (18 and 19) included in the housing part (14).

Patentansprüche

30 1. Lastträgerfuß (4) zum Montieren einer Lastträgerstange (3) auf dem Dach (2) eines Kraftfahrzeugs (1), wobei der Lastträgerfuß umfasst:

ein Fußteil (6) mit einem Basisteil (13) und einem Rahmenteil (14), wobei das Fußteil (6) ein oberes Ende (7) zum Anbringen an der Lastträgerstange (3) hat, und das Fußteil ein unteres Ende (8) zum Montieren an einem Dachkantenbereich (5) an dem Kraftfahrzeug hat, wobei das Fußteil eine Klemmplatte (9) zum Sichern des Fußteils am Dach des Kraftfahrzeugs hat, wobei die Klemmplatte angegossene Greifmittel (10) zum Greifen eines Karosseriefalzes (11) hat, der unter dem Dachkantenbereich des Kraftfahrzeugs liegt, wobei sich die Klemmplatte in schwenkbarem Eingriff mit dem Fußteil mittels eines Gelenkzapfens (22) befindet, der schwenkbar mit dem Fußteil verbunden ist, und sich die Klemmplatte mit dem Fußteil in verstellbarem Eingriff mittels einer Verspannvorrichtung (26) befindet, wobei das Fußteil und die Klemmplatte jeweils untere Kontaktflächen (30, 32) haben, die unter dem Gelenkzapfen liegen, wenn der Lastträgerfuß an dem Dach des Kraftfahrzeugs gesichert ist, wobei die unteren Kontaktflächen (30, 32) in verriegelnder Art zusammenwirken, wenn der Lastträgerfuß an dem Dach des Kraftfahrzeugs gesichert ist, um zu

verhindern, dass sich die Klemmplatte um den Gelenkzapfen dreht, wodurch verhindert wird, dass die Greifmittel ihren Griff an der Karosseriefalte lockern, wenn die Klemmplatte gegen das Fußteil verspannt ist, und wobei die Klemmplatte und das Fußteil jeweils obere Kontaktflächen (31, 33) haben, die in verriegelnder Art zusammenwirken, wenn der Lastträgerfuß an dem Dach des Kraftfahrzeugs gesichert ist, und die weiterhin verhindern, dass die Greifmittel ihren Griff an der Karosseriefalte lockern, wenn die Klemmplatte durch die Verspannanordnung verspannt ist,
dadurch gekennzeichnet, dass
 die zweiten Kontaktflächen (31, 33) über dem Gelenkzapfen liegen, wenn der Lastträgerfuß an dem Dach des Kraftfahrzeugs gesichert ist.

2. Lastträgerfuß (4) nach Anspruch 1, **dadurch gekennzeichnet, dass** der Gelenkzapfen (22) mit Wänden (18 und 19) verbunden ist, die in dem Rahmen teil (14) enthalten sind.

Revendications

1. Patte de porte-bagages (4) pour montage d'une barre de porte-bagages (3) sur le toit (2) d'un véhicule (1), la dite patte de porte-bagages comprenant :

un pied (6) ayant une base (13) et un boîtier (14), le pied ayant une extrémité supérieure (7) pour fixation à la barre de porte-bagages (3), et le pied ayant une extrémité inférieure (8) pour montage sur une région de bord de toit (5) du véhicule, le pied ayant une plaque de blocage (9) pour fixer le pied au toit du véhicule, la plaque de blocage ayant des moyens de prise solidaires (10) pour saisir un pli de carrosserie (11) situé sous la région de bord de toit du véhicule, la plaque de blocage étant en prise pivotante avec le pied au moyen d'un axe de pivot (22) qui est relié de façon pivotante au pied, et la plaque de blocage étant en contact de serrage avec le pied au moyen d'un dispositif de serrage (26), le pied et la plaque de blocage ayant chacun des faces de contact inférieures (30, 32) qui sont situées sous l'axe de pivot lorsque le porte-bagages est fixé au toit du véhicule, ces faces de contact inférieures (30, 32) coopérant en verrouillage lorsque le pied de porte-bagages est fixé au toit du véhicule afin d'empêcher la plaque de blocage de pivoter autour de l'axe de pivot, évitant ainsi que les moyens de prise perdent leur prise sur le pli de carrosserie lorsque la plaque de blocage est serrée contre le pied, et la plaque de blocage et le pied présentent chacun des faces de contact supérieures (31, 33) qui coopè-

rent en verrouillage lorsque la patte de porte-bagages est fixée au toit du véhicule, et qui empêchent en outre les moyens de prise de perdre leur prise sur le pli de carrosserie lorsque la plaque de blocage est serrée par le dispositif de serrage,

caractérisée en ce que

les deuxièmes faces de contact (31, 33) sont situées au-dessus de l'axe de pivot lorsque la patte de porte-bagages est fixée au toit du véhicule.

2. Patte de porte-bagages (4) selon la revendication (1), **caractérisée en ce que** l'axe de pivot (22) est relié aux parois (18 et 19) incluses dans la partie boîtier (14).

25

20

30

35

40

45

50

55

Fig 1

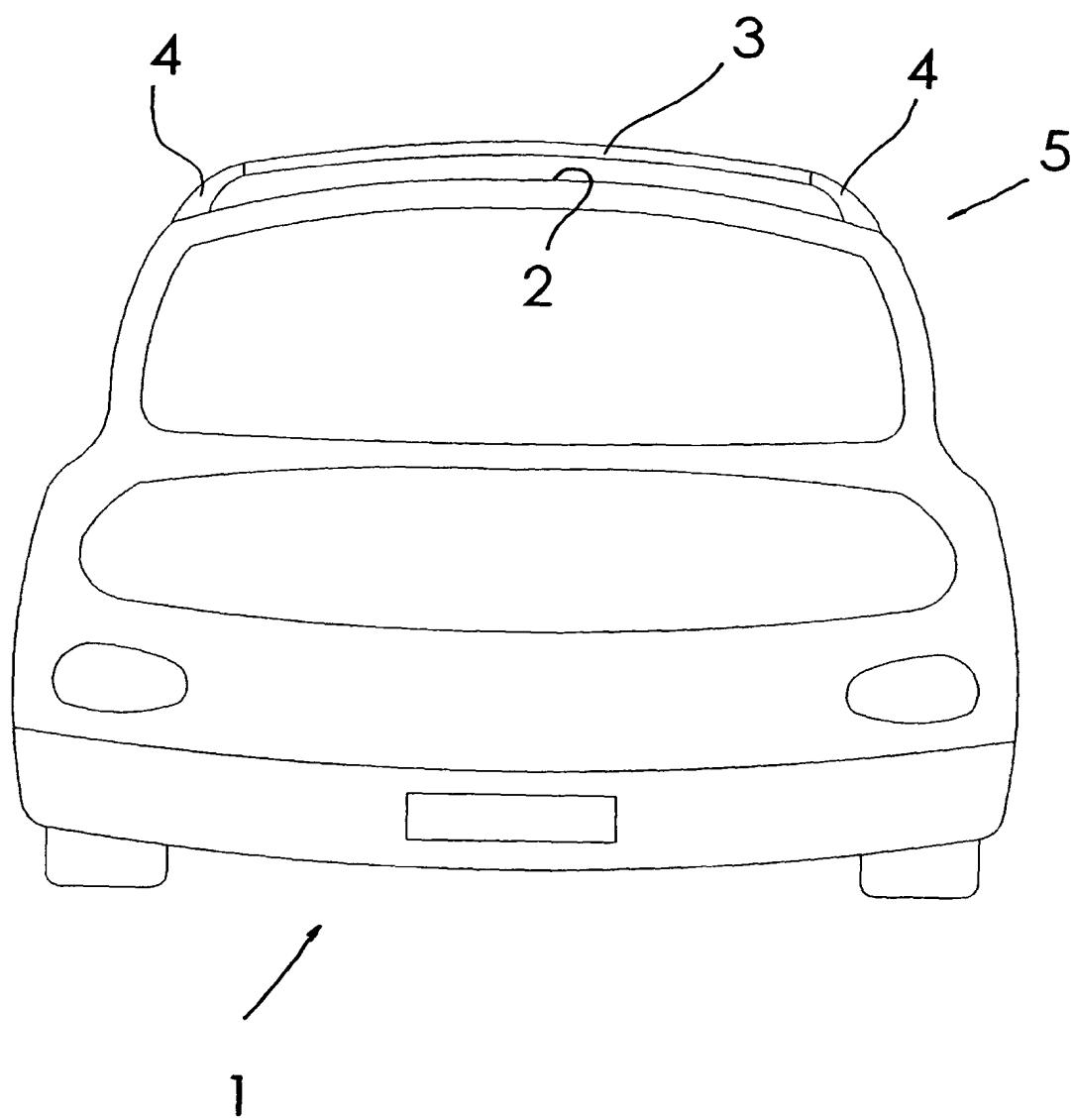


Fig 2

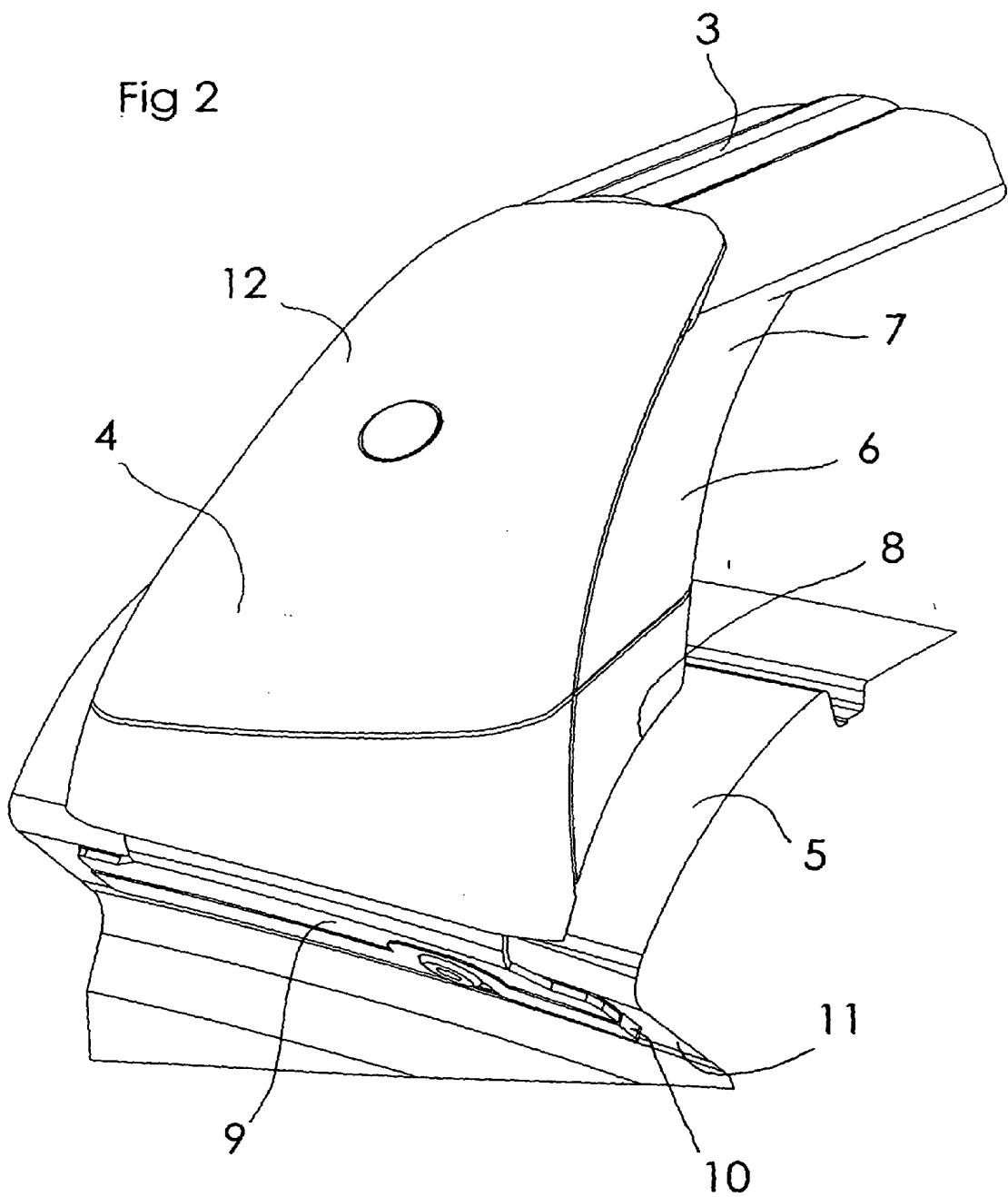


Fig 3

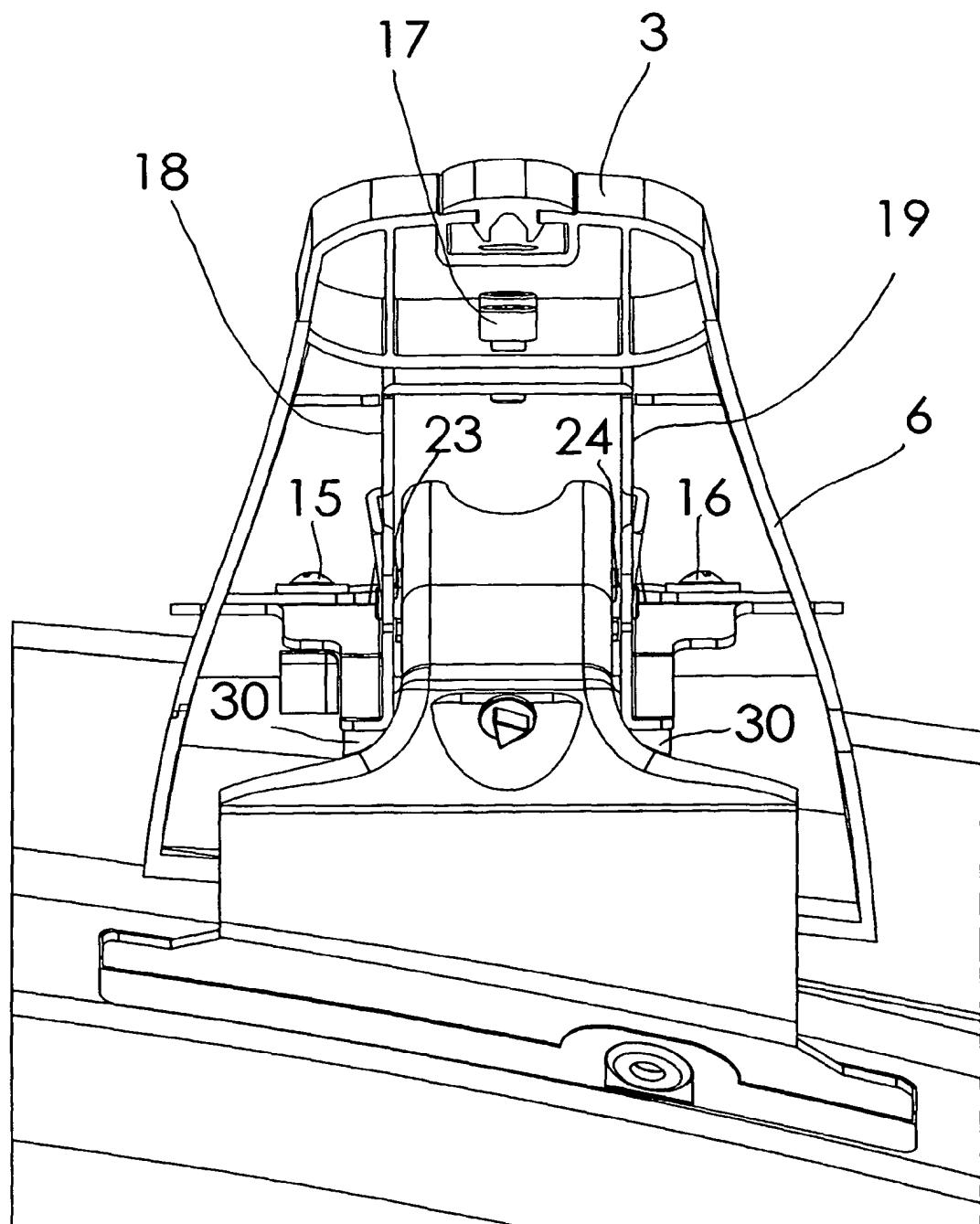


Fig 4

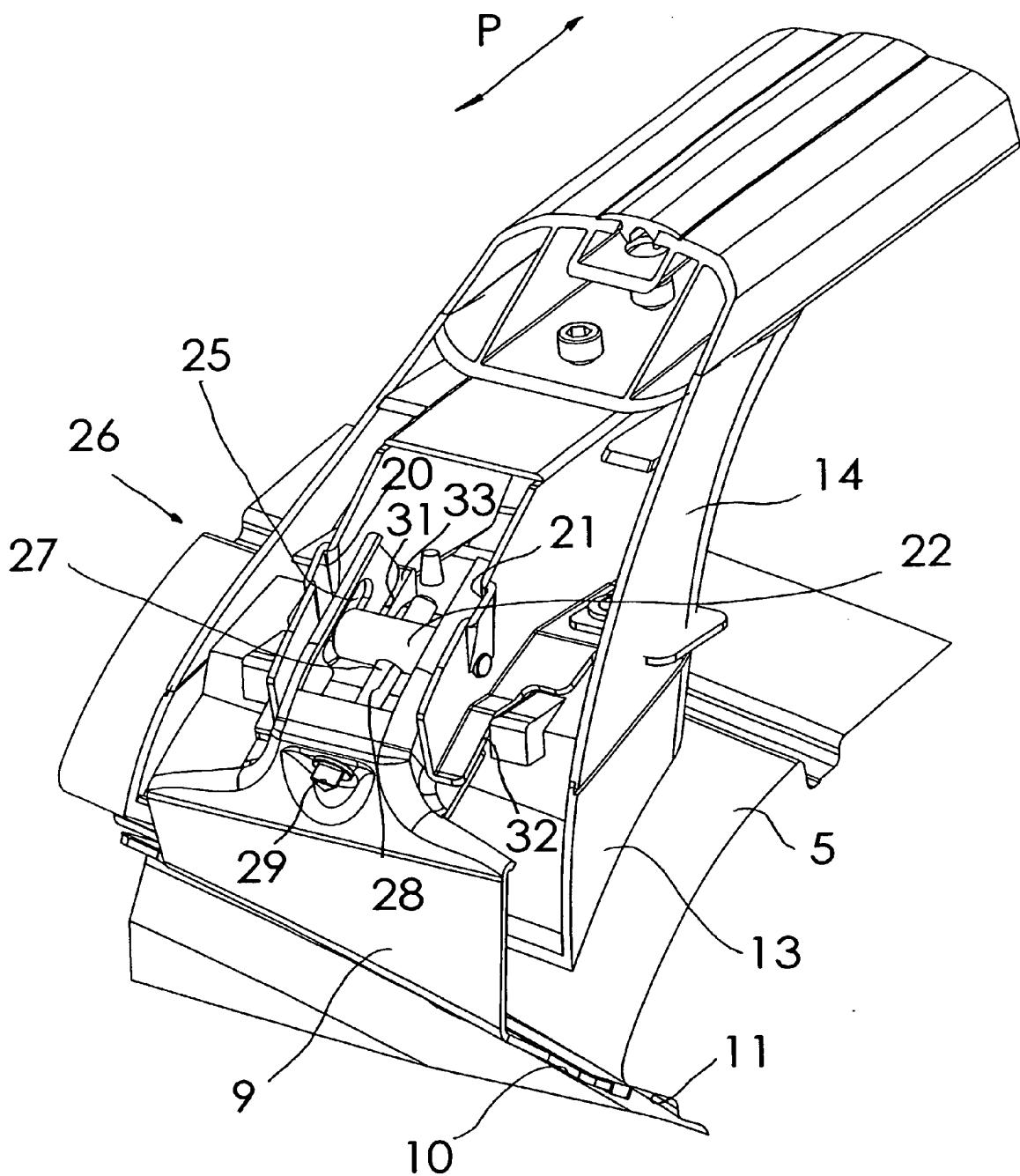


Fig 5

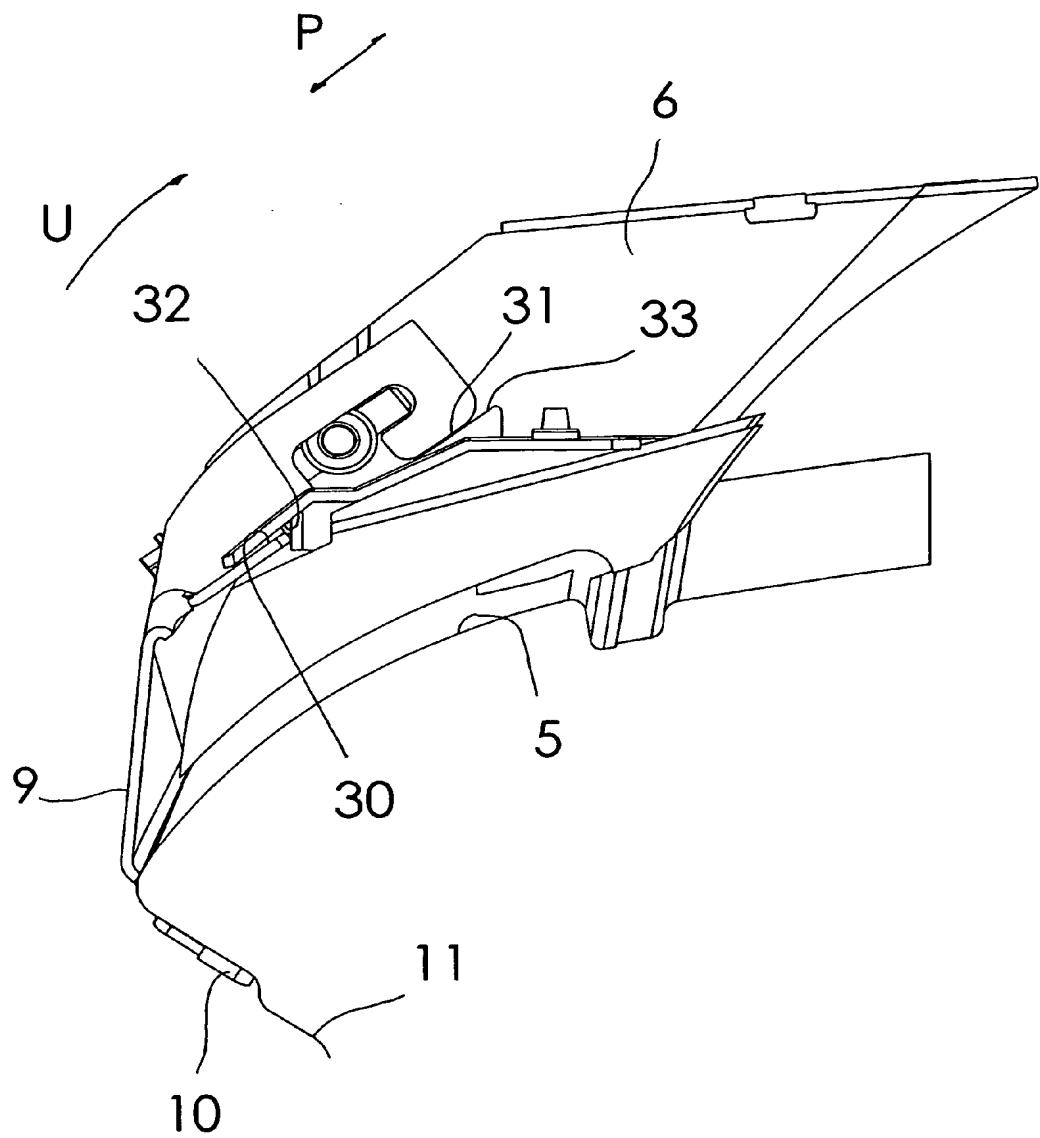


Fig 6

